SONY

CAMCORDER INTERFACE BOX

VA-DN1

MAINTENANCE MANUAL
1st Edition
Serial No. 10001 and Higher

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理など行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for Camcorder Interface Box VA-DN1.

Contents

The followings are summaries of the each section for understanding the manual.

Section 1 Service Overview
Describes information about connection for service and connector input/output signals.

Section 2 Spare Parts
Describes parts list, exploded views and supplied accessories list used in the unit.

Section3 Semiconductor Pin Assignments
Describes function diagrams and pin names of semiconductor used in the unit.

Section 4 Diagrams and Board Layouts
Describes overall block diagram, schematic diagram and board layouts.

Relative Manual

Besides this “Maintenance Manual”, the following manual is available for this unit.

Operation Manual (Supplied with this unit)
This manual is necessary for application and operation of this unit.

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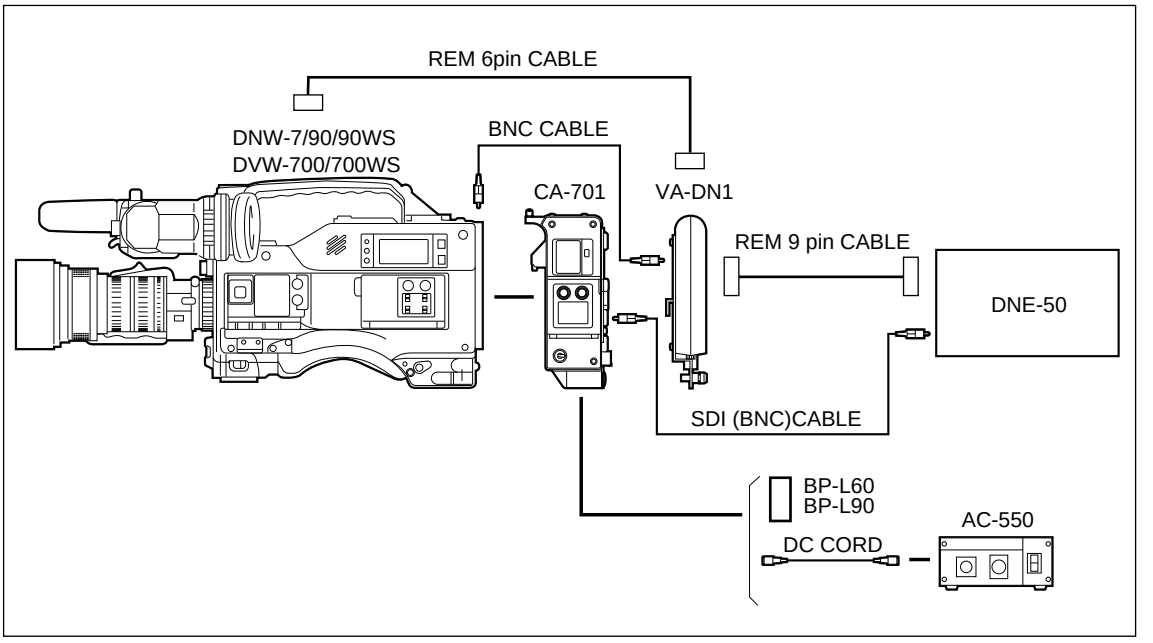
Section 1
Service Overview

1-1. System Configuration



Notes on System Connection

It is necessary to check the following items for the DVW-700/700WS/700P/700WSP before connecting it to the VA-DN1. Take the following countermeasures when the use conditions are not met.

Check items	Use conditions	Countermeasures	Applicable serial Nos.
AT-84 board	Board suffix shall be -13 or higher.	Board replacement (A-8263-236-B)	Serial No.10001 to 10196 (DVW-700) Serial No.90001 to 90015 (DVW-700) Serial No.40001 to 40310 (DVW-700P) Serial No.90022 to 90037 (DVW-700P) Serial No.10001 to 10085 (DVW-700WS) Serial No.90001 to 90002 (DVW-700WS) Serial No.40001 to 40505 (DVW-700WSP)
SY-191 board	ROM(IC1) version shall be V1.10 or higher.	IC replacement (QFP type P/N:8-759-388-93) (EPROM type P/N:8-759-398-40)	Serial No.10001 to 10196 (DVW-700) Serial No.90001 to 90015 (DVW-700) Serial No.40001 to 40250 (DVW-700P) Serial No.90001 to 90021 (DVW-700P) Serial No.10001 to 10065 (DVW-700WS) Serial No.90001 to 90002 (DVW-700WS) Serial No.40001 to 40415 (DVW-700WSP)

1-2. Connectors and Cables

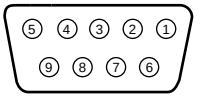
1-2-1. Connector Input and Output Signals

Main connector input and output signals are shown below.

LTC IN

BNC connector : 1.0 V p-p, 75

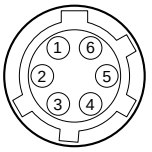
RS-422A (9P, FEMALE)



(External View)

No.	Signal
1	FRAME GROUND
2	TRANSMIT ( )
3	RECEIVE ( )
4	RECEIVE COMMON
5	SPARE
6	TRANSMIT COMMON
7	TRANSMIT ( )
8	RECEIVE ( )
9	FRAME GROUND

CAMERA REMOTE (6P, MALE)



(External View)

No.	Signal	Specifications
1	SERIAL DATA OUT	Serial data for camera control
2	SERIAL DATA IN	
3	UNREG (G)	
4	VBS IN	VBS : 1.0 V p-p
5	VBS (G)	
6	UNREG IN	+12 V dc

1-2-2. Connection Connector

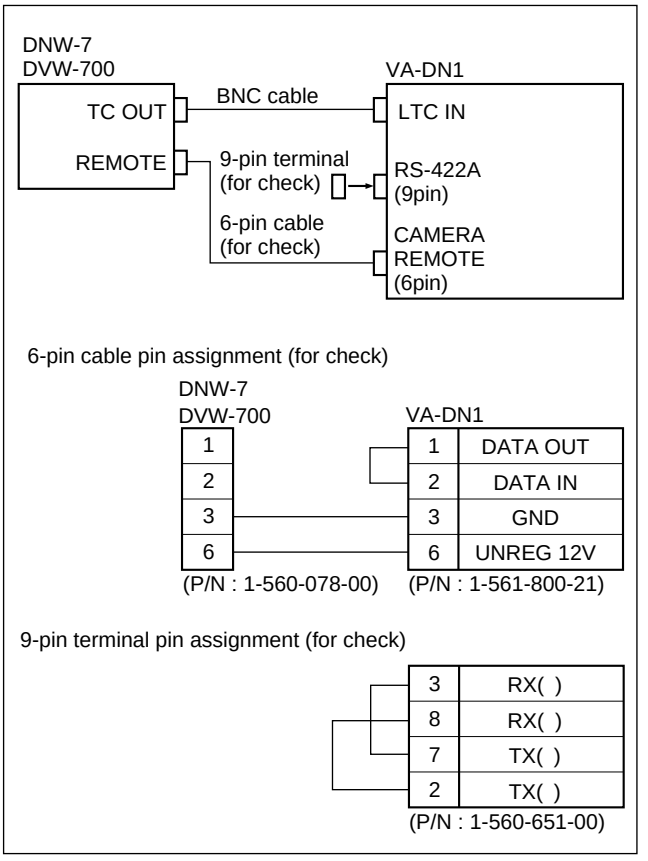
Connection made with the connector panels during installation or service, should be made with the connectors/ complete cable assemblies specified in the following list, or equivalent parts.

Connector name	Connection connector/cable
LTC IN (BNC)	1-560-069-11 Plug, BNC or B-B Cable assembly (Cable length 1.5 m, option)
RS-422A (9P FEMALE)	1-560-651-00 D-SUB, 9P Male and 1-561-749-00 JUNCTION SHELL
CAMERA REMOTE (6P MALE)	1-561-800-21 Plug, 6P Female

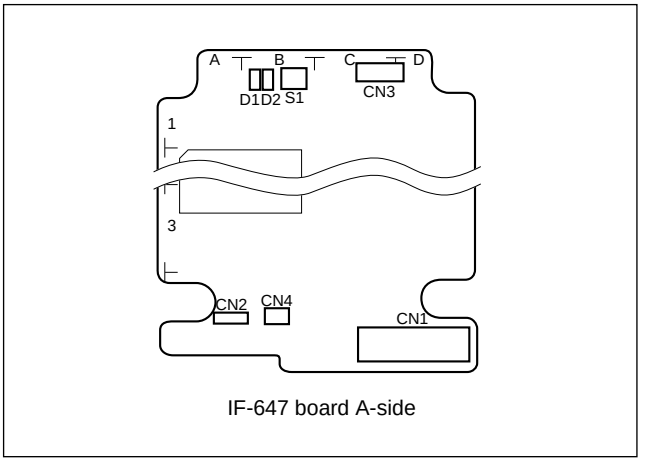
1-3. Diagnostic Mode

1-3-1. Preparation

1. Connect the VA-DN1 as follows.



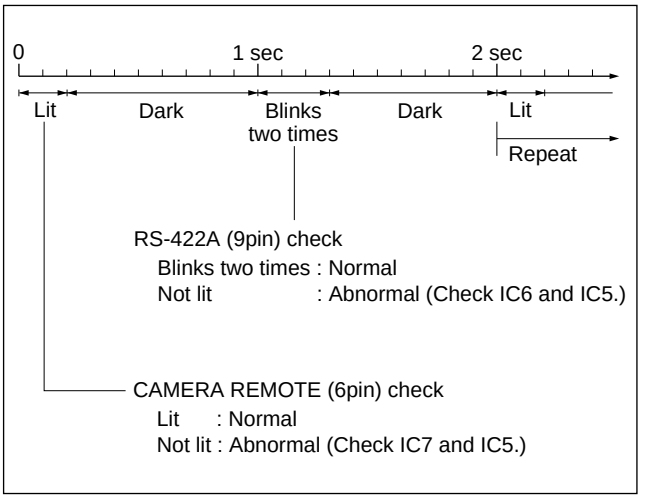
2. Set S1-3 switch to ON.



3. Turn the power ON.

1-3-2. Remote System Check

Check D1(LED) blinks as follows.



1-3-3. Time Code System Check

Check D2 (LED) blinks when time code (free-run) is inputs from outside source (camcorder etc.).

Flashes: Normal

Not flash: Abnormal (Check IC10 and IC11.)

1-4. Fuse Replacement

The unit has a fuse on the IF-647 board. When the fuse is replaced, use the specified part as follows.

Fuse 0.8 A, 125 V : Sony Part No. 1-576-220-21

1-5. Notes on Spare Parts

1. Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP(Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

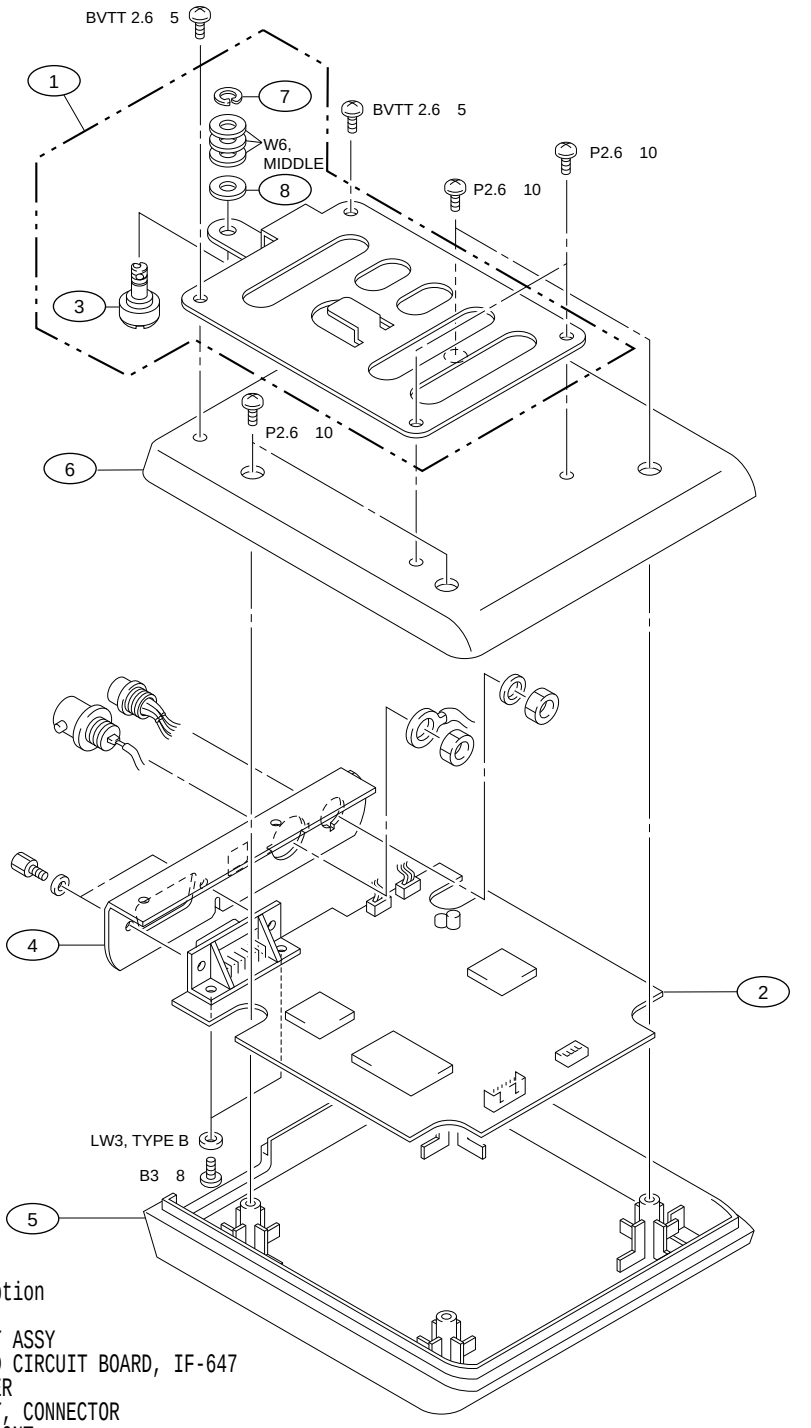
4. Units Representation

The following represented units are changed or omitted in writing.

Units		Representation
Capacitance	µF	uF
Inductance	µH	uH
Resistance		Abbreviation
Temperature	C	XXX-DEG-C

Section 2
Spare Parts

2-1. Exploded View



No.	Part No.	SP	Description
1	A-8267-450-A	s	BRACKET ASSY
2	A-8312-241-A	o	MOUNTED CIRCUIT BOARD, IF-647
3	3-180-979-01	o	FASTENER
4	3-191-424-01	o	BRACKET, CONNECTOR
5	3-191-425-01	o	CAB, FRONT
6	3-191-426-01	o	CAB, REAR
7	3-618-078-00	s	RING, RETAINING, CE TYPE
8	3-701-444-11	s	WASHER, 6
	7-623-422-07	s	LW 3, TYPE B
	7-682-548-04	s	SCREW +B 3X8
	7-685-135-19	s	SCREW +P 2.6X10 TYPE2 NON-SLIT
	7-685-861-09	s	SCREW +BVTT 2.6X5 (S)
	7-688-006-12	s	W6, MIDDLE

2-2. Electrical Parts List

IF-647 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8312-241-A	o	MOUNTED CIRCUIT BOARD, IF-647
2pcs	7-682-548-04	s	SCREW +B 3X8
2pcs	7-623-422-07	s	LW 3, TYPE B
C1	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C2	1-163-227-11	s	CERAMIC, CHIP 10.0PF 50V
C3	1-163-227-11	s	CERAMIC, CHIP 10.0PF 50V
C4	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C5	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C6	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C7	1-126-160-11	s	ELECT 1.0MF 20% 50V
C8	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C9	1-164-232-11	s	CERAMIC 10000PF 10% 100V
C10	1-126-160-11	s	ELECT 1.0MF 20% 50V
C11	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C12	1-110-501-11	s	CERAMIC 330000PF 10% 16V
C13	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C14	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C15	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C16	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C17	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C18	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C19	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C20	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C21	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C22	1-126-157-11	s	ELECT 10MF 20% 16V
C23	1-126-157-11	s	ELECT 10MF 20% 16V
C24	1-126-157-11	s	ELECT 10MF 20% 16V
C25	1-126-157-11	s	ELECT 10MF 20% 16V
C26	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C27	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C28	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C29	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C30	1-164-004-11	s	CERAMIC 100000PF 10% 25V
C31	1-164-232-11	s	CERAMIC 10000PF 10% 50V
C32	1-110-501-11	s	CERAMIC 330000PF 10% 16V
C33	1-110-501-11	s	CERAMIC 330000PF 10% 16V
CN1	1-563-323-11	s	CONNECTOR, D-SUB 9P, FEMALE
CN2	1-565-139-11	o	CONNECTOR (STRAIGHT) 6P
CN3	1-564-004-11	o	CONNECTOR 5P
CN4	1-506-467-11	o	CONNECTOR 2P
D1	8-719-989-22	s	DIODE CL-150R-CD, RED
D2	8-719-987-43	s	TRANSISTOR CL-150PG-CD, GRN
D4	8-719-941-86	s	DIODE DAN202U
D5	8-719-941-23	s	DIODE DA204U
F1 ⚠	1-576-220-21	s	FUSE, CHIP 0.8A 125V
IC3	8-759-926-11	s	IC SN74HC138ANS
IC4	8-759-925-85	s	IC SN74HC32ANS
IC5	8-759-180-50	s	IC MB89371AH-PF
IC6	8-759-061-67	s	IC MC34051M
IC7	8-759-252-59	s	IC MAX202CSE
IC8	8-759-925-90	s	IC SN74HC74ANS
IC9	8-759-052-52	s	IC L78M05T-FA
IC10	8-759-175-77	s	IC CXD8384Q
IC11	8-759-925-05	s	IC LM2903PS
IC12	8-759-925-74	s	IC SN74HC04ANS
IC13	8-759-196-96	s	IC TC7SH08FU-TE85R
IC14	8-759-323-73	s	IC HD6475328F10

(IF-647 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC15	8-759-259-18	s	IC MB3793-42PNF
IS2	1-251-197-11	o	SOCKET, IC
L1	1-410-807-11	s	INDUCTOR, CHIP 0.1uH
L2	1-424-642-11	s	COIL, CHOKE 47uH
R1	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R2	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R3	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R4	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R5	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R6	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R7	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R8	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R9	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R10	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R11	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R12	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R13	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R14	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R15	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R16	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R17	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R18	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R19	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R20	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R21	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R22	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R23	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R24	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R25	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R26	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R27	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R28	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R29	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R30	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R31	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R32	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R33	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R34	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R35	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R36	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R37	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R38	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R39	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R40	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R41	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R42	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R43	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R44	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R45	1-208-806-11	s	RES, CHIP 10K 0.5% 1/10W
R46	1-208-806-11	s	METAL, CHIP 10K 0.5% 1/10W
R47	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R48	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R49	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R50	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R51	1-216-629-11	s	METAL, CHIP 120 0.5% 1/10W
R52	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R53	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W

(IF-647 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R54	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R55	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R56	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R57	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R58	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R59	1-208-806-11	s	METAL, CHIP 10K 0.5% 1/10W
R60	1-208-806-11	s	METAL, CHIP 10K 0.5% 1/10W
R61	1-208-806-11	s	METAL, CHIP 10K 0.5% 1/10W
R62	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R63	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R64	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R65	1-208-806-11	s	METAL, CHIP 10K 0.5% 1/10W
R66	1-216-129-00	s	RES, CHIP 2.2M 5% 1/10W
R67	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R68	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R69	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R70	1-208-806-11	s	METAL, CHIP 10K 0.5% 1/10W
R71	1-208-806-11	s	METAL, CHIP 10K 0.5% 1/10W
R72	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R73	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R74	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R75	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R76	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R77	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R80	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R81	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R83	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R84	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R85	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R86	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R87	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R89	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R90	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R91	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R92	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R93	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R94	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R95	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R96	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R97	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
RB1	1-236-908-11	s	NETWORK RESISTOR (CHIP) 10K
RB2	1-239-412-11	s	NETWORK RESISTOR (CHIP) 100
RB3	1-239-412-11	s	NETWORK RESISTOR (CHIP) 100
RB4	1-239-412-11	s	NETWORK RESISTOR (CHIP) 100
RB5	1-239-412-11	s	NETWORK RESISTOR (CHIP) 100
S1	1-692-270-41	s	SWITCH, SLIDE
TP1	1-535-877-22	o	CHIP, CHECKER
TP2	1-535-877-22	o	CHIP, CHECKER
TP3	1-535-877-22	o	CHIP, CHECKER
TP4	1-535-877-22	o	CHIP, CHECKER
TP5	1-535-877-22	o	CHIP, CHECKER
X1	1-760-273-11	s	CRYSTAL 20.000000MHz
X2	1-579-773-11	s	CRYSTAL 9.830400MHz
X3	1-579-993-21	s	CRYSTAL 13.500000MHz

2-3. Supplied Accessories

Ref. No. or Q'ty	Part No.	SP	Description
1pc	X-3167-080-1	s	BRACKET ASSY, FITTING
1pc	1-751-211-21	s	CABLE ASSY 6P
1pc	1-557-722-13	o	CORD, CONNECTION
1pc	2-540-028-01	s	HOLDER, FITTING
2pcs	7-682-546-09	s	SCREW +B 3X5
2pcs	7-682-559-09	s	SCREW +B 4X5

Section 3
Semiconductor Pin Assignments

ここに記載されている半導体は，それぞれの機能を等価的に表したものです。　なお，互換性のない型名を併記していることがありますので，部品を交換するときは，Spare Partsの章を参照してください。
等価回路はＩＣメーカーのデータブックに従いました。

Semiconductors of which functions are equivalent are described here. For parts replacement, refer to the section of Spare Parts in this manual. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

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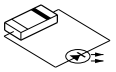
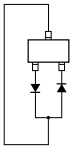
DIODE



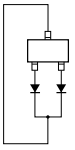
CL-150PG-CD ;GREEN
CL-150R-CD ;RED
CL-150PG-CD-T ;GREEN
CL-150R-CD-T ;RED

-TOP VIEW-



DA204U
DA204UT106

-TOP VIEW-

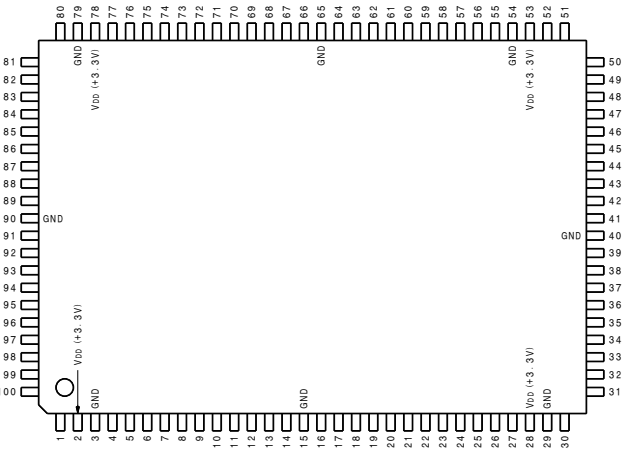


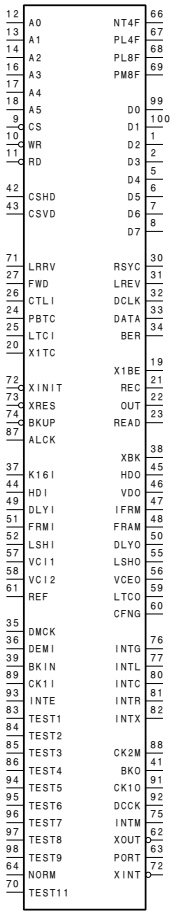
DAN202U
DAN202UT106

IC

CXD8384Q (SONY)

C-MOS LTC READER/GENERATOR
-TOP VIEW-





(VDD=+3.3V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	D2	26	I	CTLI	51	I	FRMI	76	O	INTG
2	I/O	D3	27	I	FWD	52	I	LSHI	77	O	INTL
3	–	VDD	28	–	VDD	53	–	VDD	78	–	VDD
4	–	GND	29	–	GND	54	–	GND	79	–	GND
5	I/O	D4	30	O	RSYC	55	O	LSHO	80	O	INTC
6	I/O	D5	31	O	LREV	56	O	VCEO	81	O	INTR
7	I/O	D6	32	O	DCLK	57	I	VCI1	82	O	INTX
8	I/O	D7	33	O	DATA	58	I	VCI2	83	I	TEST1
9	I	$\overline{CS}$	34	O	BER	59	O	LTCO	84	I	TEST2
10	I	$\overline{WR}$	35	I	DMCK	60	O	CFNG	85	I	TEST3
11	I	$\overline{RD}$	36	I	DEMI	61	I	REF	86	I	TEST4
12	I	A0	37	I	K16I	62	O	$\overline{XOUT}$	87	I	ALCK
13	I	A1	38	O	$\overline{XBK}$	63	O	PORT	88	O	CK2M
14	I	A2	39	I	$\overline{BKIN}$	64	I	NORM	89	I	CK1I
15	–	GND	40	–	GND	65	–	GND	90	–	GND
16	I	A3	41	O	BKO	66	O	NT4F	91	O	CK1O
17	I	A4	42	I	CSHD	67	O	PL4F	92	O	DCCK
18	I	A5	43	I	CSVD	68	O	PL8F	93	I	INTE
19	O	X1BE	44	I	HDI	69	O	PM8F	94	I	TEST5
20	I	X1TC	45	O	HDO	70	I	TEST11	95	I	TEST6
21	O	REC	46	O	VDO	71	I/O	LRRV	96	I	TEST7
22	O	OUT	47	O	IFRM	72	O	$\overline{XINT}$	97	I	TEST8
23	O	READ	48	O	FRAM	73	I	$\overline{XRES}$	98	I	TEST9
24	I	PBTC	49	I	DLYI	74	I	$\overline{BKUP}$	99	I/O	D0
25	I	LTCI	50	O	DLYO	75	O	INTM	100	I/O	D1

INPUT

A0-A5	:ADDRESS BUS IN
ALCK	:ARITHMETIC LOGIC UNIT CLOCK IN
BKIN	:BACKUP IN (NEGATIVE LOGIC)
BKUP	:BACKUP EXECUTION IN (NEGATIVE LOGIC)
CK1I	:SYSTEM CLOCK IN
CSHD	:COMPOSITE SYNC/HD IN
CSVD	:COMPOSITE SYNC/VD IN
CTLI	:CTL SIGNAL IN
DEMI	:LONGITUDINAL TIME AND CONTROL CODE IN
DLYI	:INPUT TO DELAY CIRCUIT
DMCK	:LTC DEMODULATE CLOCK IN
FRMI	:FRAME SIGNAL IN
FWD	:CTL DIRECTION SIGNAL IN
HDI	:HORIZONTAL SYNC INPUT
INTE	:EXTERNAL INTERRUPT IN (POSITIVE LOGIC)
K16I	:16KHz CLOCK IN BACKUP CLOCK IN
LRRV	:DIRECTION INPUT FOR LTC READER CALCULATION
LTCI	:GENERATED LTC IN
LSHI	:LTC SYNCHRINOUS H INPUT
NORM	:NORMAL/BACKUP MODE SELECT
TEST1-TEST9, TEST11	:TEST IN
PBTC	:PLAYBACK LTC IN
RD	:READ IN (NEGATIVE LOGIC)
REF	:REFERENCE OF LTC GENERATOR
VCI1	:LTC CLOCK IN-1
VCI2	:EXTERNAL LTC IN
X1TC	:LTC CLOCK IN-2
XRES	:SYSTEM RESET IN (NEGATIVE LOGIC)
WR	:WRITE IN (NEGATIVE LOGIC)

OUTPUT

BER	:BI-PHASE MARK ERROR (BIT ERROR)
BKO	:BACKUP CONTROL OUT-2 (POSITIVE LOGIC)
CFNG	:COLOR FRAME ERROR FLAG OUT
CK1O	:SYSTEM CLOCK OUT
CK2M	:CLOCK 2M OUT
CS	:CHIP SELECT IN (NEGATIVE LOGIC)
D0-D7	:DATA BUS
DATA	:DEMODULATED SERIAL DATA OUT
DCCK	:LTC DECODE CLOCK OUT
DCLK	:DEMODULATED CLOCK OUT
DLYO	:OUTPUT FROM DELAY CIRCUIT
FRAM	:FRAME SIGNAL OUT -2
HDO	:HORIZONTAL SYNC DRIVE OUT
IFRM	:FRAME SIGNAL OUT -1
INTC	:CTL INTERRUPT OUT (POSITIVE LOGIC)
INTG	:GENERATOR INTERRUPT OUT (POSITIVE LOGIC)
INTL	:READER INTERRUPT -1 OUT (POSITIVE LOGIC)
INTM	:INTERRUPT MIX OUT (POSITIVE LOGIC)
INTR	:READER INTERRUPT -2 OUT (POSITIVE LOGIC)
INTX	:EXTERNAL LTC INTERRUPT OUT (POSITIVE LOGIC)
LREV	:READ REV/FWD BIT OUT
LSHO	:LTC SYNCHRONOUS SIGNAL H OUT
LTCO	:LTC SIGNAL OUT
NT4F, PL4F, PL8F, PM8F	:DEMODULATED COLOR FRAME OUT
OUT	:EXTERNAL OUTPUT LTC OUT
PORT	:PORT
READ	:READ LTC OUT
REC	:RECORD LTC OUT
RSYC	:READ SYNC WORD DATA OUT
VCEO	:LTC CLOCK OUT
VDO	:VERTICAL SYNC DRIVE OUT
X1BE	:BI-PHASE MARK ERROR (NORMAL SPEED READER)
XBK	:BACKUP CONTROL OUT-1 (NEGATIVE LOGIC)
XINT	:INVERTED INTERRUPT MIX OUT (NEGATIVE LOGIC)
XOUT	:INVERTED EXTERNAL OUTPUT LTC OUT

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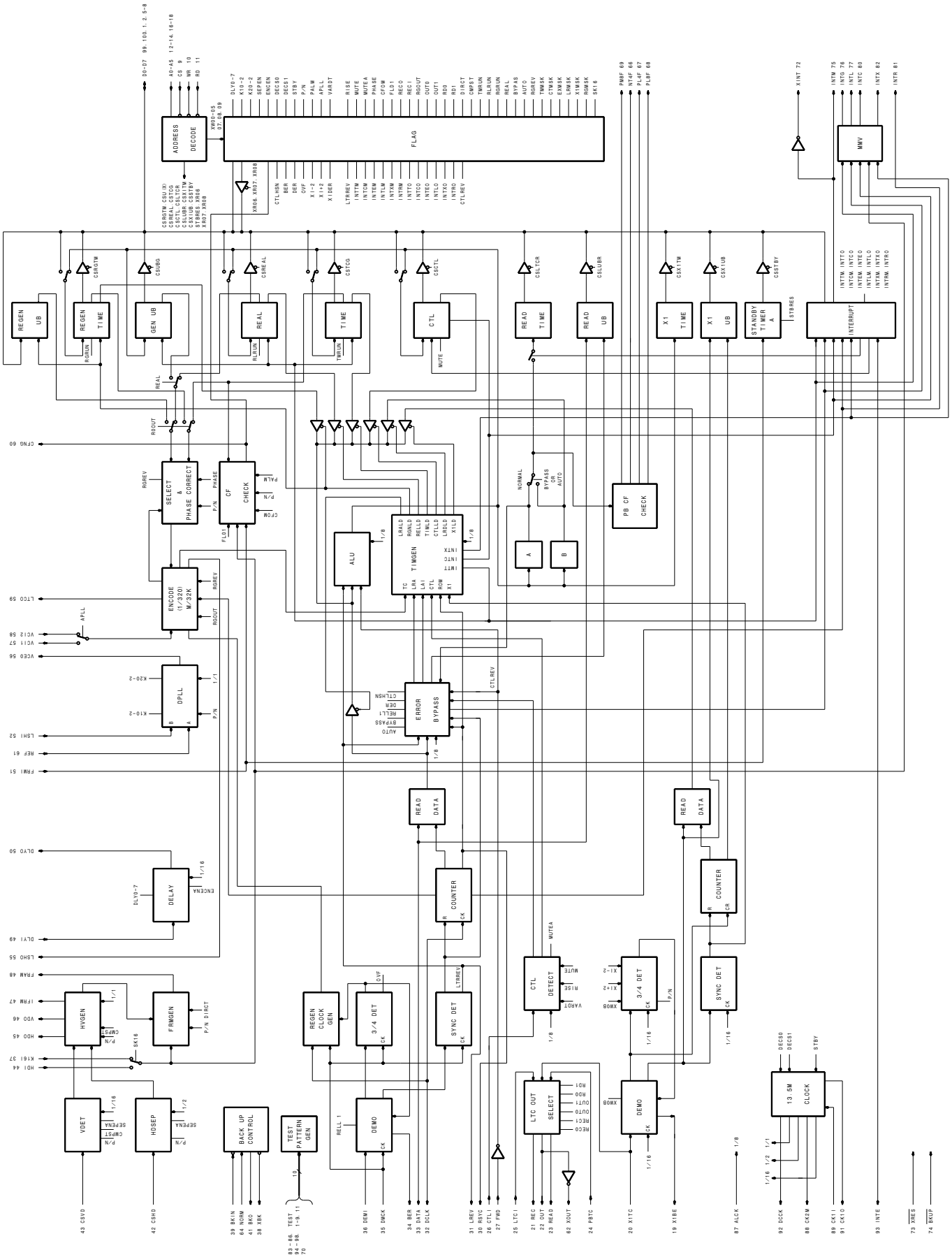
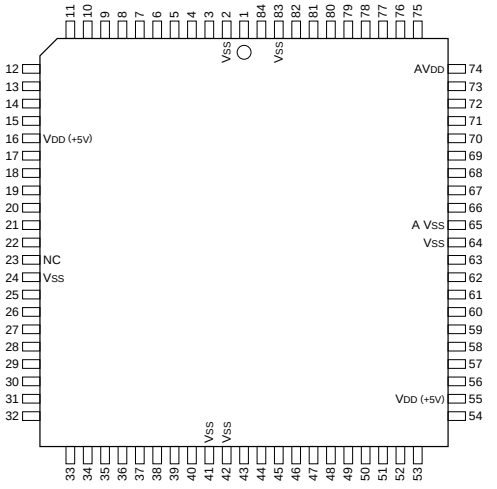


HD6475328CP10 (HITACHI)

16-BIT CPU
-TOP VIEW-



(VDD=+5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	XTAL	29	I/O	P34/D4	57	I/O	P71/FTI1
2	—	VSS	30	I/O	P35/D5	58	I/O	P72/FTI2
3	I/O	P10/ø	31	I/O	P36/D6	59	I/O	P73/FTI3/TMRI
4	I/O	P11/E	32	I/O	P37/D7	60	I/O	P74/FTOB1/FTCI1
5	I/O	P12/$\overline{BACK}$	33	I/O	P40/A0	61	I/O	P75/FTOB2/FTCI2
6	I/O	P13/$\overline{BREQ}$	34	I/O	P41/A1	62	I/O	P76/FTOB3/FTCI3
7	I/O	P14/$\overline{WAIT}$	35	I/O	P42/A2	63	O	P77/FTOA1
8	I/O	P15/$\overline{IRQ0}$	36	I/O	P43/A3	64	—	VSS
9	I/O	P16/$\overline{IRQ1}$	37	I/O	P44/A4	65	—	A VSS
10	I/O	P17/TMO	38	I/O	P45/A5	66	I/O	P80/AN0
11	I/O	P20/$\overline{AS}$	39	I/O	P46/A6	67	I/O	P81/AN1
12	I/O	P21/R/$\overline{W}$	40	I/O	P47/A7	68	I/O	P82/AN2
13	I/O	P22/$\overline{DS}$	41	—	VSS	69	I/O	P83/AN3
14	I/O	P23/$\overline{RD}$	42	—	VSS	70	I/O	P84/AN4
15	I/O	P24/$\overline{WR}$	43	I/O	P50/A8	71	I/O	P85/AN5
16	—	VDD	44	I/O	P51/A9	72	I/O	P86/AN6
17	I	MD0	45	I/O	P52/A10	73	I/O	P87/AN7
18	I	MD1	46	I/O	P53/A11	74	—	AVDD
19	I	MD2	47	I/O	P54/A12	75	I/O	P90/FTOA2
20	I	STBY	48	I/O	P55/A13	76	I/O	P91/FTOA3
21	I	RES	49	I/O	P56/A14	77	I/O	P92/PW1
22	I	NMI	50	I/O	P57/A15	78	I/O	P93/PW2
23	—	NC	51	I/O	P60/A16	79	I/O	P94/PW3
24	—	VSS	52	I/O	P61/A17	80	I/O	P95/TXD
25	I/O	P30/D0	53	I/O	P62/A18	81	I/O	P96/RXD
26	I/O	P31/D1	54	I/O	P63/A14	82	I/O	P97/SCK
27	I/O	P32/D2	55	—	VDD	83	—	VSS
28	I/O	P33/D3	56	I/O	P70/TMCI	84	I	EXTAL

INPUT

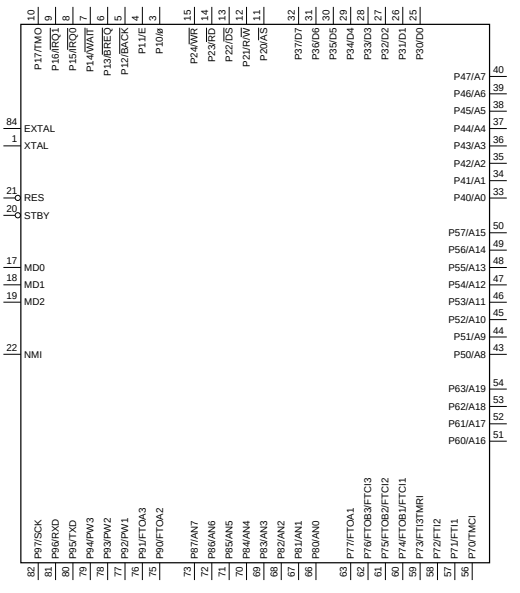
AN0-AN7	;	ANALOG INPUTS
BREQ	;	BUS REQUEST
EXRAL	;	CONNECTED TO CRYSTAL OSCILLATOR
FTCI1-FTCI3	;	FRT COUNTER CLOCK INPUTS (CHANNEL 1 TO 3)
FTI1-FTI3	;	FRT INPUT CAPTURE INPUTS (CHANNEL 1 TO 3)
IRQ0, 1	;	INTERRUPTION REQUEST 0 AND 1
MD0-MD2	;	MODE SETTING
NMI	;	NON MASKABLE INTERRUPTION
P80-P87	;	PORT 8
RES	;	RESET
RXD	;	RECEIVE DATA
STBY	;	STANDBY
TMCI	;	8-BIT TIMER CLOCK INPUT
TMRI	;	8-BIT TIMER COUNTER RESET INPUT
WAIT	;	WAIT
XRAL	;	CONNECTED TO CRYSTAL OSCILLATOR

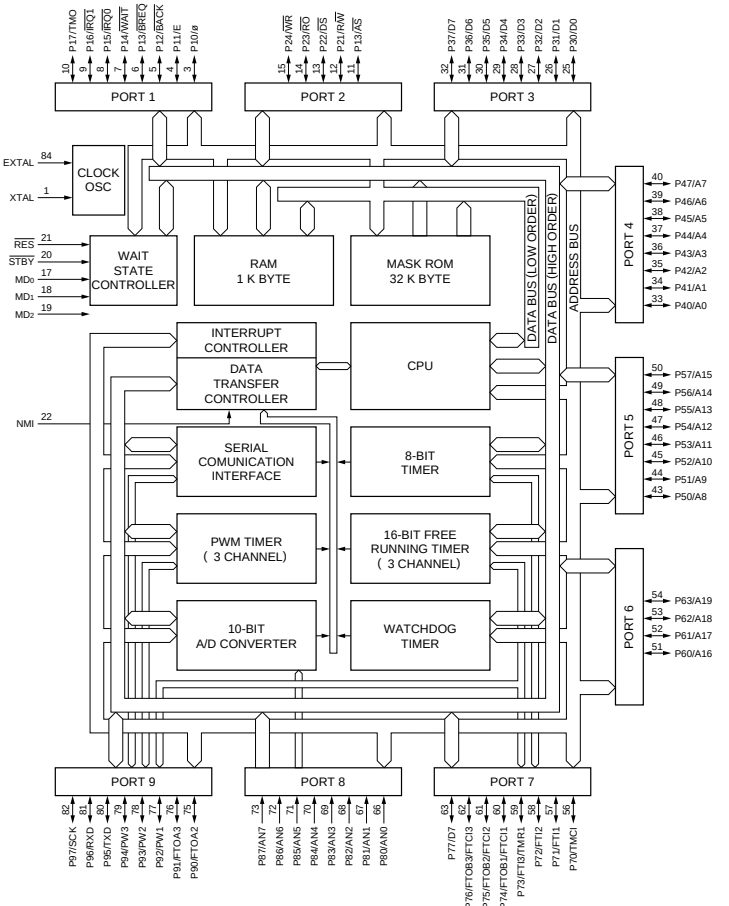
OUTPUT

A0-A19	;	ADDRESS BUS
AS	;	ADDRESS STROBE
BACK	;	BUS REQUEST ACKNOWLEDGE
DS	;	DATA STROBE
E	;	ENABLE CLOCK
FTOA1-FTOA3	;	FRT OUTPUT COMPARE A OUTPUT (CHANNEL 1 TO 3)
FTOB1-FTOB3	;	FRT OUTPUT COMPARE B OUTPUT (CHANNEL 1 TO 3)
PW1-PW3	;	PWM TIMER OUTPUT (CHANNEL 1 TO 3)
R/W	;	READ/WRITE
RD	;	READ
TMO	;	8-BIT TIMER OUTPUT
TXD	;	SEND DATA
WR	;	WRITE
ø	;	SYSTEM CLOCK

INPUT/OUTPUT

D0-D7	;	DATA BUS
P10-P17	;	PORT 1
P20-P24	;	PORT 2
P30-P37	;	PORT 3
P40-P47	;	PORT 4
P50-P57	;	PORT 5
P60-P63	;	PORT 6
P70-P77	;	PORT 7
P90-P97	;	PORT 9
SCK	;	SERIAL CLOCK INPUT/OUTPUT

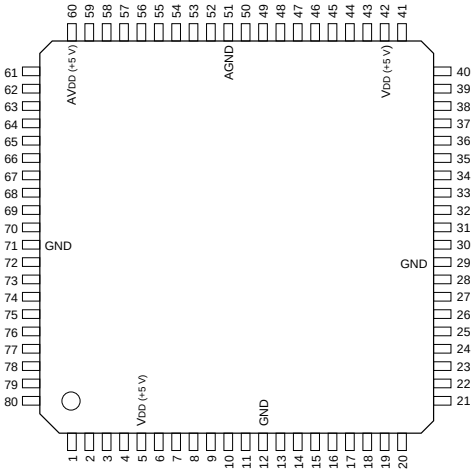




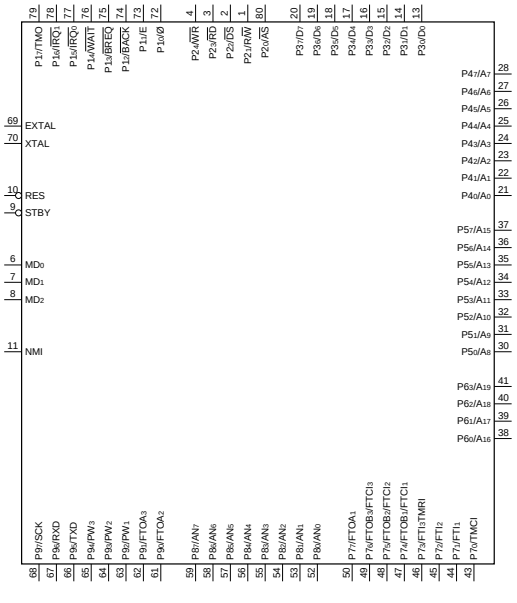
HD6475328F10 (HITACHI)

C-MOS 16-BIT MICROPROCESSOR

— TOP VIEW —



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I/O	P21/R/$\overline{W}$	28	I/O	P47/A7	55	I/O	P83/AN3
2	I/O	P22/$\overline{DS}$	29	—	GND	56	I/O	P84/AN4
3	I/O	P23/$\overline{RD}$	30	I/O	P50/A8	57	I/O	P85/AN5
4	I/O	P24/$\overline{WR}$	31	I/O	P51/A9	58	I/O	P86/AN6
5	—	VDD	32	I/O	P52/A10	59	I/O	P87/AN7
6	I	MD0	33	I/O	P53/A11	60	—	AVDD
7	I	MD1	34	I/O	P54/A12	61	I/O	P90/FTOA2
8	I	MD2	35	I/O	P55/A13	62	I/O	P91/FTOA3
9	I	$\overline{STBY}$	36	I/O	P56/A14	63	I/O	P92/PW1
10	I	$\overline{RES}$	37	I/O	P57/A15	64	I/O	P93/PW2
11	I	NMI	38	I/O	P60/A16	65	I/O	P94/PW3
12	—	GND	39	I/O	P61/A17	66	I/O	P95/TXD
13	I/O	P30/D0	40	I/O	P62/A18	67	I/O	P96/RXD
14	I/O	P31/D1	41	I/O	P63/A19	68	I/O	P97/SCK
15	I/O	P32/D2	42	—	VDD	69	I	EXTAL
16	I/O	P33/D3	43	I/O	P70/TMCI	70	I	XTAL
17	I/O	P34/D4	44	I/O	P71/FTI1	71	—	VSS
18	I/O	P35/D5	45	I/O	P72/FTI2	72	I/O	P10/ø
19	I/O	P36/D6	46	I/O	P73/FTI3/TMRI	73	I/O	P11/E
20	I/O	P37/D7	47	I/O	P74/FTOB1/FTCI1	74	I/O	P12/$\overline{BACK}$
21	I/O	P40/A0	48	I/O	P75/FTOB2/FTCI2	75	I/O	P12/$\overline{BREQ}$
22	I/O	P41/A1	49	I/O	P76/FTOB3/FTCI3	76	I/O	P12/$\overline{WAIT}$
23	I/O	P42/A2	50	O	P77/FTOA1	77	I/O	P12/$\overline{IRQ0}$
24	I/O	P43/A3	51	—	AGND	78	I/O	P12/$\overline{IRQ1}$
25	I/O	P44/A4	52	I/O	P80/AN0	79	I/O	P12/TMO
26	I/O	P45/A5	53	I/O	P81/AN1	80	I/O	P12/$\overline{AS}$
27	I/O	P46/A6	54	I/O	P82/AN2			



INPUT

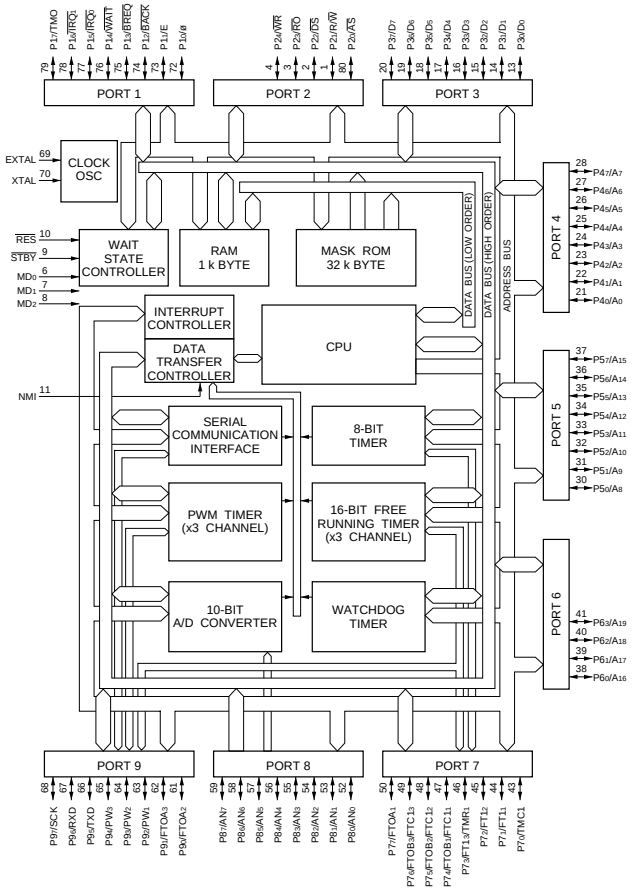
AN0-AN7	; ANALOG INPUT
BREQ	; BUS REQUEST
EXTAL	; CONNECTED TO CRYSTAL OSCILLATOR.
ETCI1-FTCI3	; FRT COUNTER CLOCK INPUT (CHANNEL 1 TO 3)
FTI1-FTI3	; FRT INPUT CAPTURE INPUT (CHANNEL 1 TO 3)
IRQ0, 1	; INTERRUPTION REQUEST 0 AND 1
MD0-MD2	; MODE SETTING
NMI	; NON MASKABLE INTERRUPTION
P80-P87	; PORT 8
RES	; RESET
RXD	; RECEIVE DATA
STBY	; STANDBY
TMCI	; 8-BIT TIMER CLOCK INPUT
TMRI	; 8-BIT TIMER COUNTER RESET INPUT
WAIT	; WAIT
XTAL	; CONNECTED TO CRYSTAL OSCILLATOR.

OUTPUT

A0-A19	; ADDRESS BUS
AS	; ADDRESS STROBE
BACK	; BUS REQUEST ACKNOWLEDGE
DS	; DATA STROBE
E	; ENABLE CLOCK
FTOA1-FTOA3	; FRT OUTPUT COMPARE A OUTPUT (CHANNEL 1 TO 3)
FTOB1-FTOB3	; FRT OUTPUT COMPARE B OUTPUT (CHANNEL 1 TO 3)
PW1-PW3	; PWM TIMER OUTPUT (CHANNEL 1 TO 3)
R/W	; READ/WRITE
RD	; READ
TMO	; 8-BIT TIMER OUTPUT
TXD	; SEND DATA
WR	; WRITE
ø	; SYSTEM CLOCK

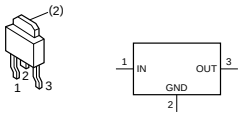
INPUT/OUTPUT

D0-D7	; DATA BUS
P10-P17	; PORT 1
P20-P24	; PORT 2
P30-P37	; PORT 3
P40-P47	; PORT 4
P50-P57	; PORT 5
P60-P63	; PORT 6
P70-P77	; PORT 7
P90-P97	; PORT 9
SCK	; SERIAL CLOCK INPUT/OUTPUT



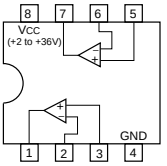
L78M05T-FA (SANYO)+5V 0.5A
LM78M05T-FA-TL

POSITIVE VOLTAGE REGULATOR



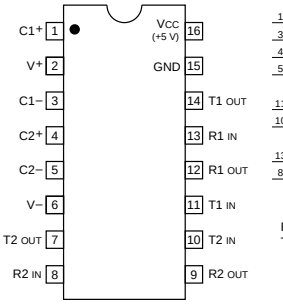
LM2903PS (TI)FLAT PACKAGE
LM2903PS-E05

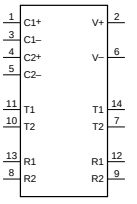
DUAL VOLTAGE COMPARATORS
—TOP VIEW—



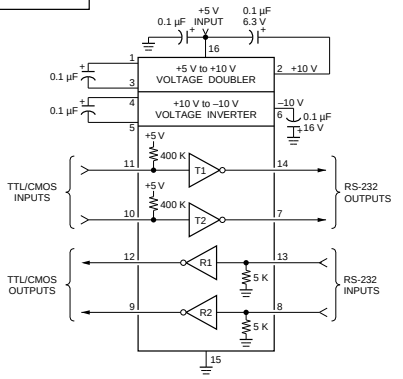
MAX202CSE (MAXIM)
MAX202CSE-TE2

RS-232 TRANSMITTER/RECEIVER
— TOP VIEW —



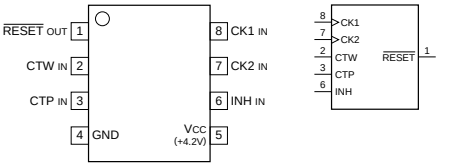


R1, 2 ; RECEIVER 1, 2
T1, 2 ; TRANSMITTER 1, 2



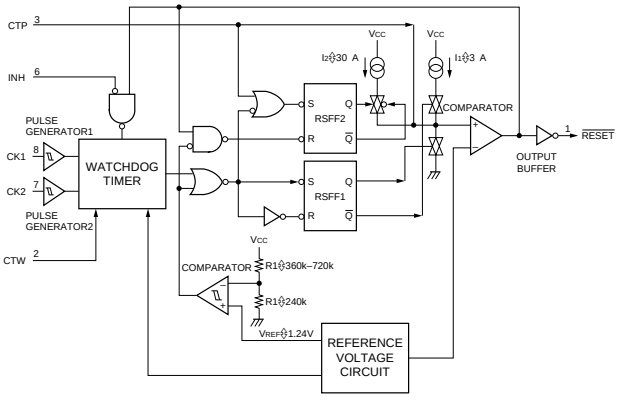
MB3793-42PNF (FUJITSU)FLAT PACKAGE
MB3793-42PNF-ER

BIPOLA SOURCE VOLTAGE SUPERVISOR
-TOP VIEW-



INPUT
CK1 ; CLOCK 1
CK2 ; CLOCK 2
CTP ; POWER ON RESET HOLD TIME PRESET
CTW ; WATCHDOG TIMER SUPERVISION TIME PRESET
INH ; INHIBIT

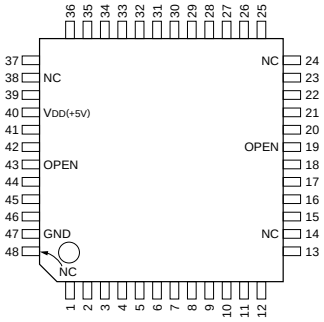
OUTPUT
RESET ; RESET

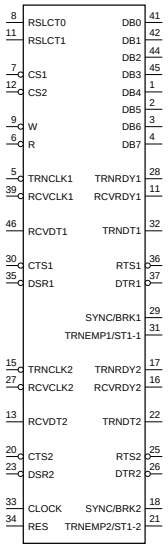


MB89371AH-PF (FUJITSU)

C-MOS DUAL SERIAL DATA TRANSMITTER / RECEIVER UNIT

-TOP VIEW-





NC ; NON CONNECT TERMINAL (OPEN)
OPEN ; NEVER CONNECT TERMINAL

(VDD = +5V)

PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	I/O	DB4	17	O	TRNRDY2	33	I	CLOCK
2	I/O	DB5	18	I/O	SYNC/BRK2	34	I	RST
3	I/O	DB6	19	—	OPEN	35	I	DSR1
4	I/O	DB7	20	I	CTS2	36	O	RTS1
5	I	TRNCLK1	21	O	TRNEMP2/ST1-2	37	I	DTR1
6	I	W	22	O	TRNDT2	38	—	NC
7	I	CS1	23	O	DSR2	39	I	RCVCLK1
8	I	RSLCT0	24	—	NC	40	—	VDD
9	I	R	25	O	RTS2	41	I/O	DB0
10	O	RCVRDY1	26	O	DTR2	42	I/O	DB1
11	I	RSLCT1	27	I	RCVCLK2	43	—	OPEN
12	I	RCVDT2	28	O	TRNRDY1	44	I/O	DB2
13	I	RCVDT2	29	I/O	SYNC/BRK1	45	I/O	DB3
14	—	NC	30	I	CTS1	46	I	RCVDT1
15	I	TRNCLK2	31	O	TRNEMP1/ST1-1	47	—	GND
16	O	RCVRDY2	32	O	TRNDT1	48	—	NC

INPUT

CLOCK ; CLOCK (4,9152MHz) FOR REFERENCE OF TIMING.
CSn ; CHIP SELECT OF CHANNELn.(n = 1 OR 2)
CTSn ; CLEAR TO SEND OF CHANNELn.(n = 1 OR 2)
DSRn ; DATA SET READY OF CHANNELn.(n = 1 OR 2)
R ; READ ENABLE
RCVCLKn ; RECEIVER CLOCK OF CHANNELn.(n = 1 OR 2)
RCVDTn ; RECEIVE DATA OF CHANNELn.(n = 1 OR 2)
RSLCTn ; REGISTERS SELECT LINEn.(n = 0 AND 1)
RST ; RESET PULSE
TRNCLKn ; TRANSMITTER CLOCK OF CHANNELn.(n = 1 OR 2)
W ; WRITE ENABLE

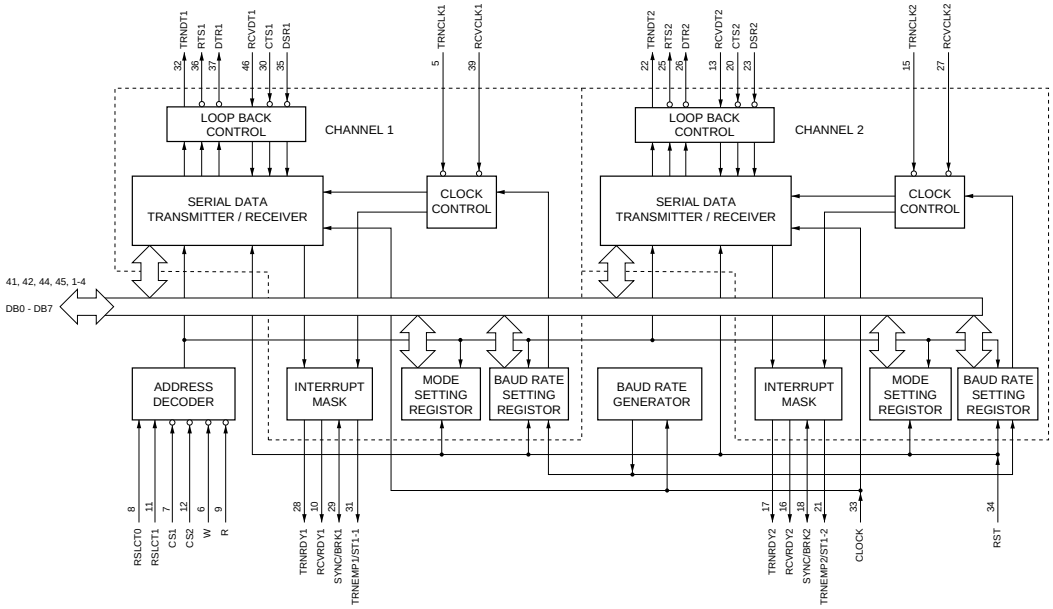
OUTPUT

DTRn ; DATA TERMINAL READY OF CHANNELn.(n = 1 OR 2)
RCVRDYn ; RECEIVER READY OF CHANNELn.(n = 1 OR 2)
RTSn ; REQUEST TO SEND OF CHANNELn.(n = 1 OR 2)
TRNDTn ; TRANSMIT DATA OF CHANNELn.(n = 1 OR 2)
TRNEMPn/ST1-n ; TRANSMITTER EMPTY / BAUD RATE CLOCK OUT OF CHANNELn.(n = 1 OR 2)
TRNRDYn ; TRANSMIT READY OF CHANNELn.(n = 1 OR 2)

INPUT/OUTPUT

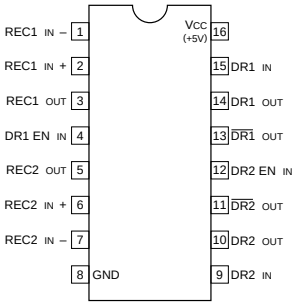
DBn ; DATA BUS LINEn.(n = 0 TO 7)
SYNC/BRKn ; SYNCHRONIZATION CHARACTOR / BREAK CODE DETECT OF CHANNELn.(n = 1 OR 2)

NC ; NON CONNECT TERMINAL (OPEN)
OPEN ; NEVER CONNECT TERMINAL



MC34051M (MOTOROLA)FLAT PACKAGE
MC34051MR

RS-422 DRIVER / RECEIVER
-TOP VIEW-

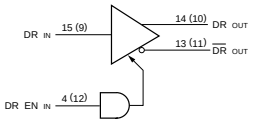


DR EN	MODE
0	DISABLE
1	ENABLE

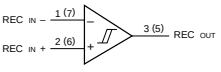
0 ; LOW LEVEL
1 ; HIGH LEVEL

DR ; DRIVER
DR EN ; DRIVER ENABLE
REC ; RECEIVER

DRIVER CIRCUIT

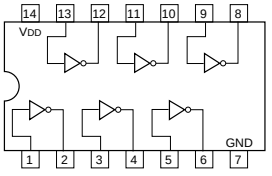


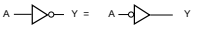
RECEIVER CIRCUIT



SN74HC04ANS (TI)FLAT PACKAGE
SN74HC04ANS-E05

C-MOS HEX INVERTERS
-TOP VIEW-





Y = $\overline{A}$

A	Y
0	1
1	0

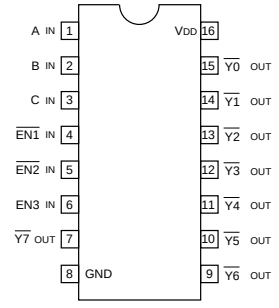
0 ; LOW LEVEL
1 ; HIGH LEVEL

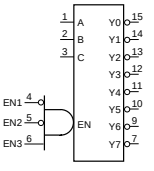
NOTE:

TYPE	VDD
74HCT04 TYPE	+5V
TC74AC04 TYPE TC74VHC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC138ANS (TI)FLAT PACKAGE
SN74HC138ANS-E05

C-MOS 3-TO-8 LINE DECODER / DEMULTIPLEXER
—TOP VIEW—





INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

EN = $\overline{EN1}$ • $\overline{EN2}$ • EN3

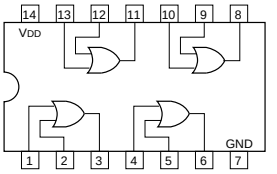
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

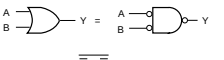
NOTE:

TYPE	VDD
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE TC74VHC138	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC32ANS (TI)FLAT PACKAGE
SN74HC32ANS-E05

C-MOS QUAD 2-INPUT OR GATES
—TOP VIEW—





Y = A + B = $\overline{\overline{A} \bullet \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

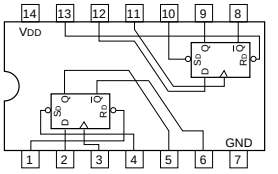
0 ; LOW LEVEL
1 ; HIGH LEVEL

NOTE:

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V

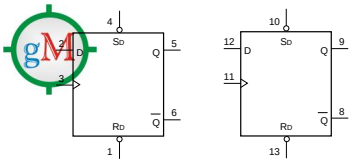
SN74HC74ANS (TI)FLAT PACKAGE
SN74HC74ANS-E05

C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET
—TOP VIEW—



INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↓	1	1	0
1	1	↓	0	0	1
1	1	0	X	Qn	$\overline{Qn}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE



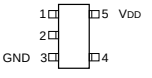
NOTE:

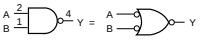
TYPE	VDD
HCT/ACT	+5V
TC74AC/VHC	+2 to +5.5V
OTHERS	+2 to +6V

TC7SH08FU-TE85R (TOSHIBA)CHIP PACKAGE

C-MOS 2-INPUT AND GATE

(SCALE 6/1)
—TOP VIEW—





Y = A • B = $\overline{\overline{A} + \overline{B}}$

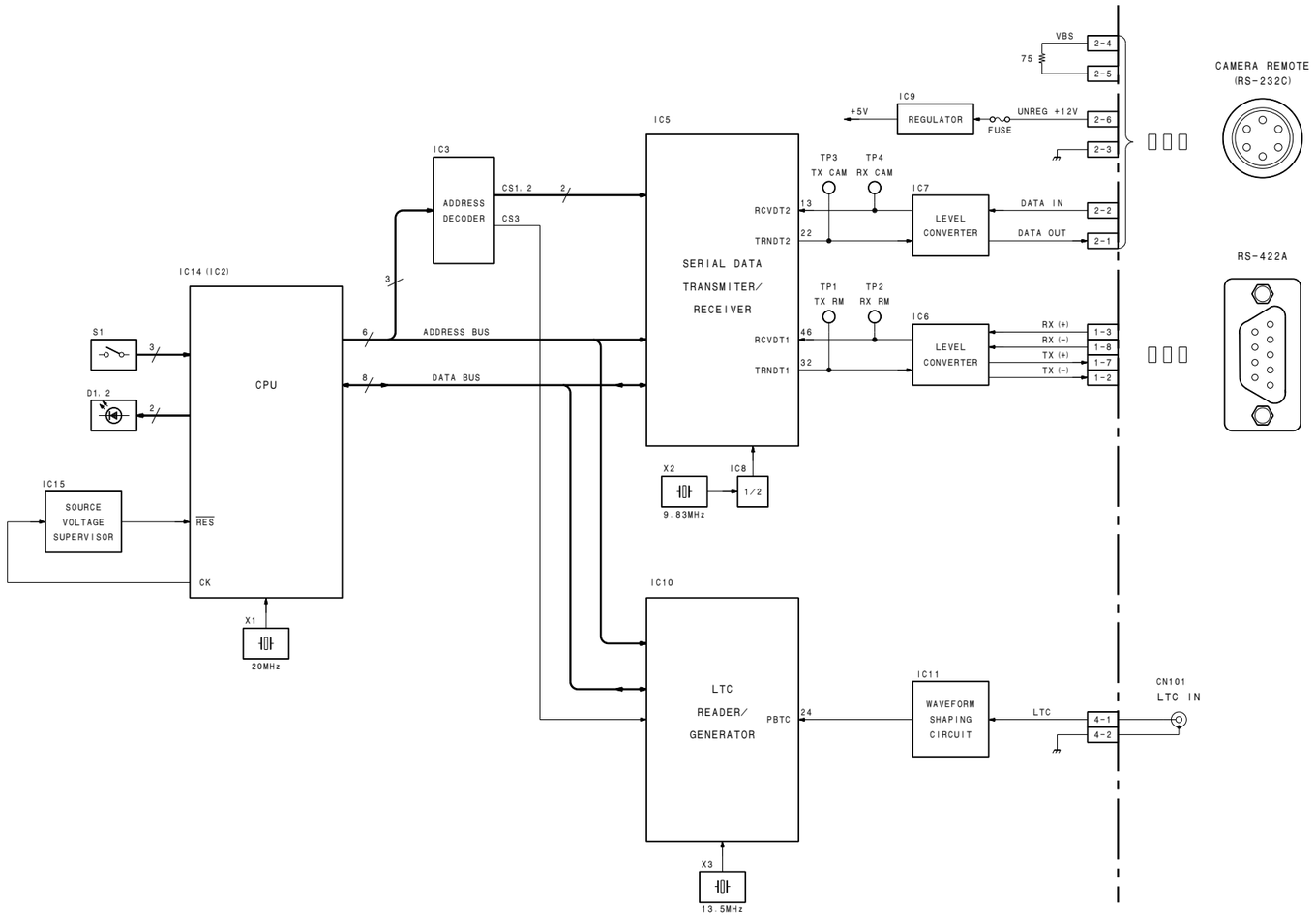
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

TYPE	VDD
7S08F 7S08FU	+2 to +6V
4S81F 14S81F	+3 to +18V
7SH08FU	–2 to +5.5V

Section 4
Diagrams and Board Layouts

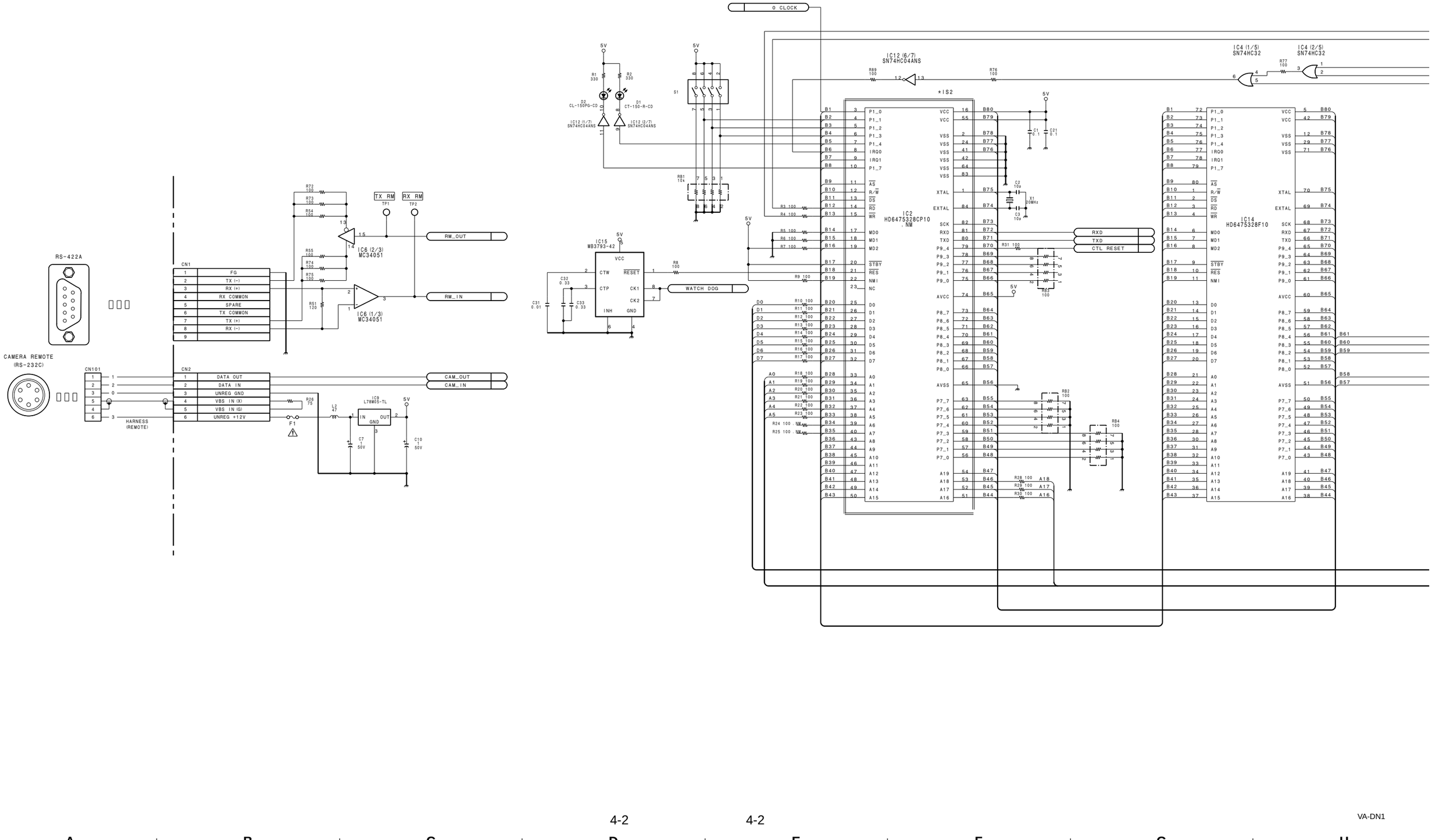
Block Diagram

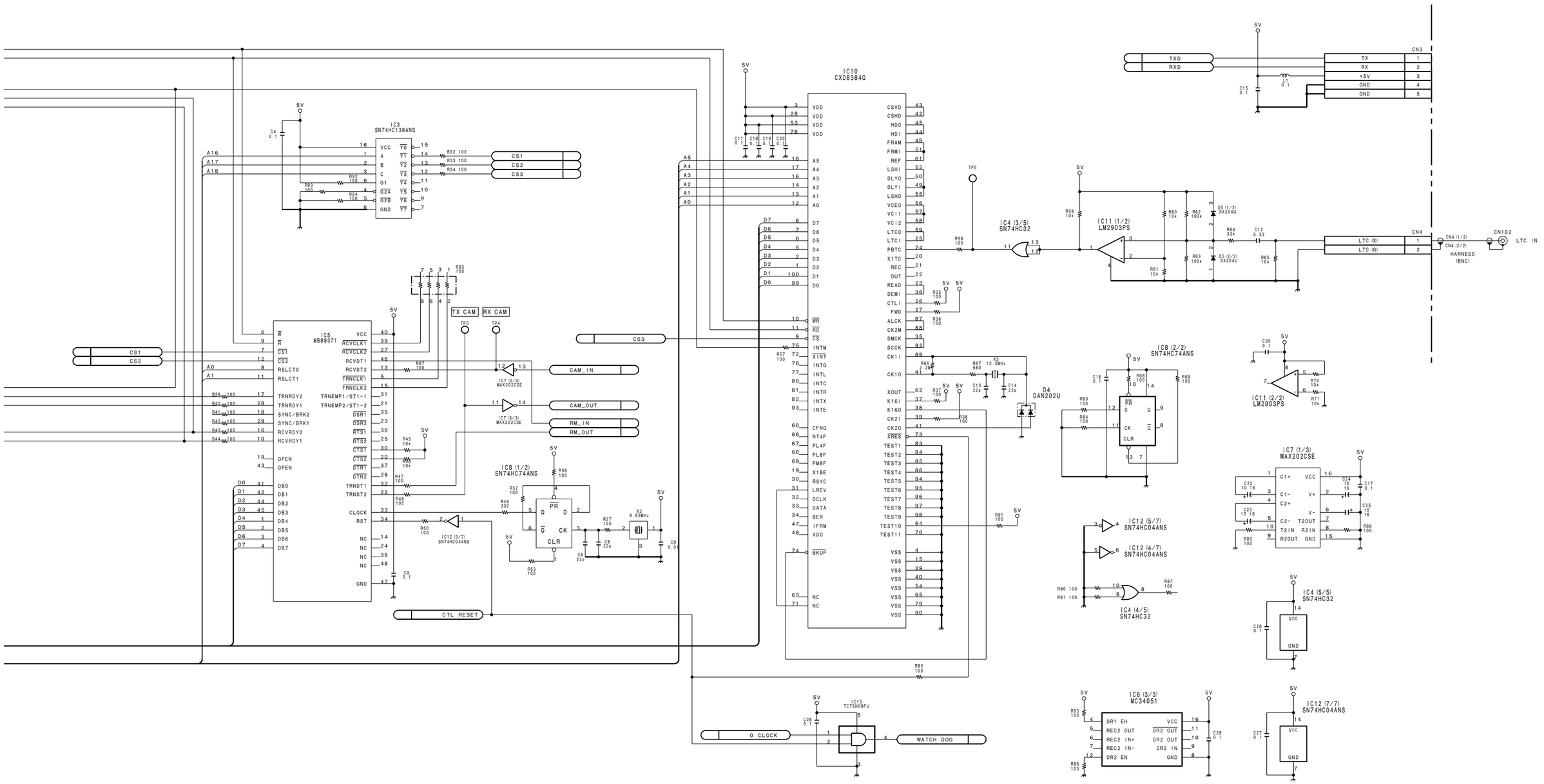


Overall Block
LOT NO. 605-
B-¥VADN1-OVERALL

VA-DN1(SY)

Schematic Diagram





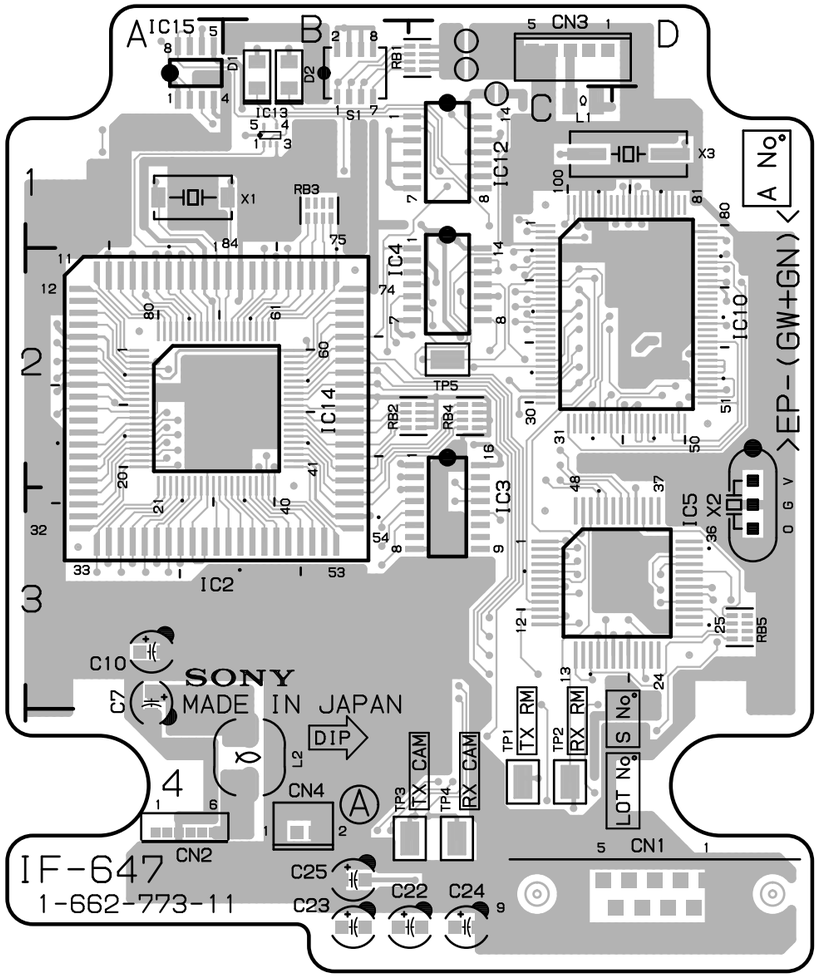
IF-647
BOARD NO. 1-662-773-11
LOT NO. 605-
B-¥VADN1-IF647-11

Board Layouts

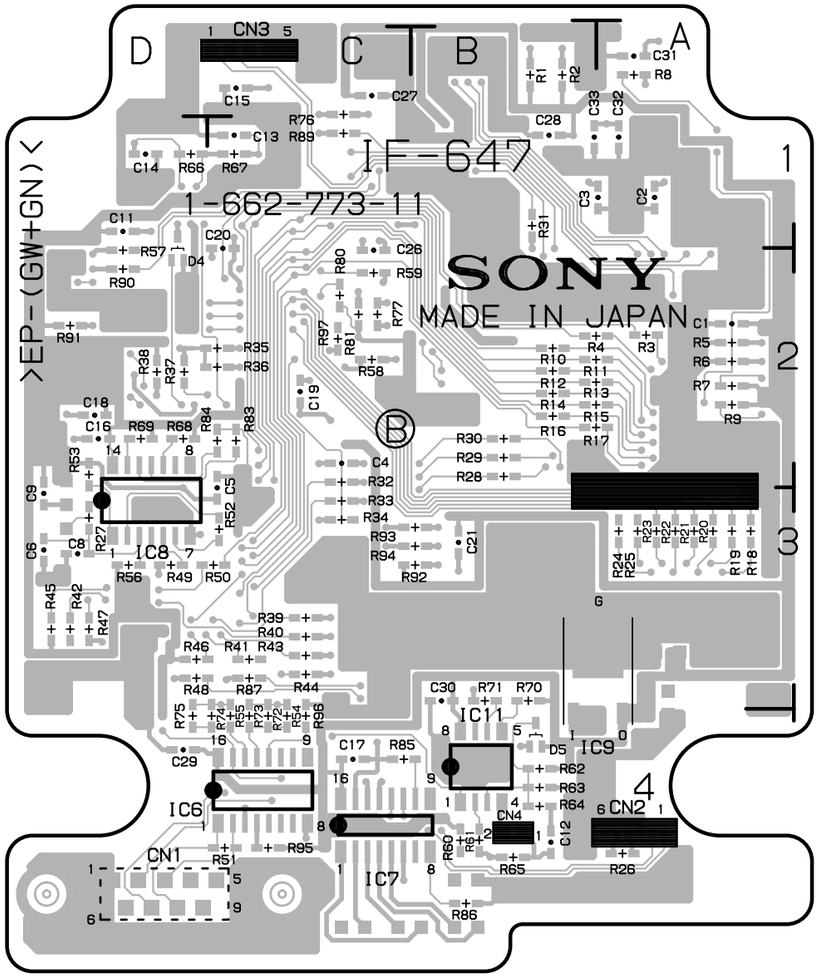
IF-647 (1-662-773-11)

C1	*A2	R26	*A4
C2	*A1	R27	*D3
C3	*A1	R28	*B2
C4	*C2	R29	*B2
C5	*C3	R30	*B2
C6	*D3	R31	*B1
C7	A3	R32	*C2
C8	*D3	R33	*C3
C9	*D3	R34	*C3
C10	A3	R35	*C2
C11	*D1	R36	*C2
C12	*B4	R37	*D2
C13	*C1	R38	*D2
C14	*D1	R39	*C3
C15	*C1	R40	*C3
C16	*D2	R41	*C3
C17	*C4	R42	*D3
C18	*D2	R43	*C3
C19	*C2	R44	*C3
C20	*C2	R45	*D3
C21	*B3	R46	*D3
C22	C4	R47	*D3
C23	B4	R48	*D3
C24	C4	R49	*D3
C25	B4	R50	*C3
C26	*C2	R51	*C4
C27	*C1	R52	*C3
C28	*B1	R53	*D2
C29	*D4	R54	*C4
C30	*B3	R55	*C4
C31	*A1	R56	*D3
C32	*A1	R57	*D2
C33	*B1	R58	*C2
CN1	D4	R59	*C2
CN2	A4	R60	*B4
CN3	C1	R61	*B4
CN4	B4	R62	*B4
		R63	*B4
D1	B1	R64	*B4
D2	B1	R65	*B4
D4	*D2	R66	*D1
D5	*B4	R67	*C1
		R68	*D2
IC2	A2	R69	*D2
IC3	C2	R70	*B3
IC4	C2	R71	*B3
IC5	D3	R72	*C4
IC6	*C4	R73	*C4
IC7	*C4	R74	*C4
IC8	*D3	R75	*D4
IC9	*A3	R76	*C1
IC10	D2	R77	*C2
IC11	*B4	R80	*C2
IC12	C1	R81	*C2
IC13	B1	R83	*C2
IC14	A2	R84	*C2
IC15	A1	R85	*C4
		R86	*B4
L1	C1	R87	*C3
L2	B4	R89	*C1
		R90	*D2
R1	*B1	R91	*D2
R2	*B1	R92	*B3
R3	*A2	R93	*B3
R4	*B2	R94	*B3
R5	*A2	R95	*C4
R6	*A2	R96	*C4
R7	*A2	R97	*C2
R8	*A1	RB1	C1
R9	*A2	RB2	C2
R10	*B2	RB3	B1
R11	*B2	RB4	C2
R12	*B2	RB5	D3
R13	*B2		
R14	*B2	S1	B1
R15	*B2		
R16	*B2	TP1	C4
R17	*B2	TP2	C4
R18	*A3	TP3	C4
R19	*A3	TP4	C4
R20	*A3	TP5	C2
R21	*A3		
R22	*A3	X1	A1
R23	*A3	X2	D3
R24	*A3	X3	D1
R25	*A3		

*:B SIDE



IF-647 -A SIDE-
BOARD NO. 1-662-773-11



IF-647 -B SIDE-
BOARD NO. 1-662-773-11

http://getMANUAL.com

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